

described in claim 14, wherein said optical preamplifier and optical converter are integrated using wafer bonding, selective epitaxial, vertical epitaxial techniques.

Claim 19 (original) The monolithic photoreceiver concept and integration approach as described in claim 14, wherein said optical preamplifier and optical are integrated using other material structures based on the group consisting of InP, GaAs, GaSb, InAs, InSb, AlAs, AlSb, GaN, AlN, SiGe, Si and SiC technologies.

Claims 20-40 (canceled)

Claim 41 (previously amended) The monolithic photoreceiver as described in claim 14, wherein said optical converter comprises a photodetector (PD), a transimpedance amplifier (TIA) and a buffer amplifier (BA).

Claim 42 (previously amended) The monolithic photoreceiver concept and in integration approach a described in claim 14, wherein said optical preamplifier and optical converter are integrated using wafer bonding, selective epitaxial, vertical epitaxial techniques.

Claim 43 (previously) amended) The monolithic receiver as described in claim 14, wherein top Distributed Bragg Reflector (DR) stacks of said optical preamplifier act as an integrated filter.

Claim 44 (previously amended) The monolithic photoreceiver as described in claim 14, further comprising monolithic photoreceiver array, comprising:

- a vertically integrated array of said optical preamplifier (VCSEA); and
- a vertically integrated array of optical converters.

Claim 45 (previously amended) The monolithic photoreceiver array as described in claim 44, wherein said array is formed by integrating arrays of VCSEAs and optical converters.

Claim 46 (previously amended) The monolithic photoreceiver array as described in claim 44, wherein said array is either a single or multiple wavelengths.

Claim 47 (previously amended) The monolithic photoreceiver array as described in claim 44, wherein said array is integrated with a single TIA, control and decision circuits.

Claim 48 (previously amended) The monolithic photoreceiver array as described in claim 44, wherein said each pixel in the array is integrated with TIA, control and decision circuits.

Claim 49 (previously amended) The monolithic photoreceiver as described in claim 44, wherein said each row in the array is integrated with TIA, control and decision circuits.